

CDMA MULTI-USER DETECTION WITH A REAL SYMBOL
CONSTELLATION

ABSTRACT

A method for multi-user detection includes receiving
5 a complex input signal due to a superposition of
waveforms encoding symbols in a real-valued
constellation, which are transmitted respectively by a
plurality of transmitters in a common frequency band.
The complex input signal is sampled at sampling intervals
10 over the duration of an observation period to provide a
sequence of complex samples. The sequence of complex
samples is processed to determine soft decision values
corresponding to the symbols transmitted by the plurality
of the transmitters in the observation period, while
15 constraining the soft decision values to be real values.
The soft decision values are then projected onto the
constellation to estimate the transmitted symbols.